32. **No Waiving of Legal Rights and Powers**
The Employer shall not be precluded or stopped from taking any Measurements and Framing of Estimates or Detaining any Certificates made either before or after the Completion and Acceptance of the Work and Payment, from showing the True Amount and Character of the Works Performed and Materials furnished by the Contractor and from showing that any such Measurements, Estimates or Certificates Untrue or incorrectly made and that the Employer shall not be precluded or stopped from recovering from the Contractor and such Damages as it may be sustained by Reasons of his Failure to comply with the Terms and Conditions of the Contract. Neither the Acceptance by the Employer nor any Payment for Acceptance of the whole or any part of the Work nor any Extension of Time nor any Possession taken by the Employer shall operate as a Waiver of any Portion of the Contract or any Power herein reserved or of any Risk to Damage. A Waiver of any Breach of the Contract shall not be held to be a Waiver of any other or subsequent Breach.

33. The Tenderers shall also mention with their Tender Documents the Name of their Project Managers, Work Managers, Graduate Engineers who shall be engaged in this Work. The Biodata of such Engineers / Managers are to be enclosed with the Tender Documents.

34. The Tenderers may specify the Number and Category of each type of Skilled Personnel to be deputed by the Contractors. It may clearly be stated as to whether such Skilled Persons are under the Employment of the Tenderers or are still to be appointed by them. The Number of Skilled and Unskilled Persons to be employed shall be in agreement with the Programme of Work submitted by the Tenderers and discussed elsewhere in the Tender Documents.

35. The Employer might deploy Project Management Consultant (PMC) for Design Checking and Approval, Supervision, Quality Control, Progress Monitoring, etc. The Contractor shall abide by the Instructions / Suggestions given by the PMC for the successful completion of the Project.

36. **Interference with Traffic and Adjoining Properties**

a. All Operations necessary for the Execution and Completion of the Works and the Remedying of any Defects therein shall, so far as Compliance with the Requirements of the Contract Permits, shall be carried out so that not to interfere unnecessarily or improperly with the following.

i. The Convenience of the public, or

ii. The Access to, Use and Occupation of Public or Private Roads and Footpaths or of Properties whether in the Possession of the Employer or of any other person.

b. In case any Operation connected with the Traffic necessitates Diversion, Obstruction or Closure of any Road, Railway or any other Right of Way, the Approval of the Employer and the Concerned Authorities shall be obtained well in advance by the Contractor.

37. **Avoidance of Damage to Roads**
The Contractor shall use every Reasonable Means to prevent any of the Roads, Bridges communicating with or on the Routes to the Site from being damaged, injured by any Traffic of the Contractor or any of his Sub Contractors and in particular, shall select Routes, choose and use Vehicles and restrict and distribute Loads so that any such Extraordinary Traffic as will inevitably arise from the Moving of Materials, Plant, Contractor's Equipment or Temporary Works from and to the Site shall be limited, as far as reasonably possible, and so that no Unnecessary Damage or Injury may be occasioned to such Roads and Bridges.

38. **Transport of Contractor's Equipment or Temporary Works**

a. The Contractor shall be Responsible for and shall pay the Cost of Strengthening any Bridges or altering or improving any Road communicating with or on the Routes to the Site to facilitate the

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Movement of Contractor's Equipment or Temporary Works and the Contractor shall and keep indemnified the Employer against all Claims for Damage to any such Road caused by such movement, including such Claims as may be made directly against the E and shall negotiate and pay such Claims arising solely out of such Damage.

b. If it is found necessary for the Contractor to move one or more Loads of Heavy Construction Plant and Equipment, Materials or Parts of Units of Work over Roads, Highways, Bridges which such Oversized and Overweight Items are not normally allowed to be moved Contractor shall obtain Prior Permission from the Concerned Authorities. Payments complying with the Requirements, if any, for Protection of or Strengthening of the Road Highways or Bridges shall be made by the Contractor and such expenses shall be deemed to included in his Contract Price.

39. **Personal Protective Equipment**

The Contractor shall at all times keep and maintain an adequate supply of suitable Personal Protective Equipment, which shall be readily available for use at all times on the site and would include but not to be limited to the following Items.

- Safety Helmets.
- Hearing Protection.
- Respiratory Protection.
- Eye Protection.
- Protective Gloves.
- Safety Footwear.
- High Visibility Clothing conforming to BS EN 471 Class 3 Standards.

All Sites shall be designated as HARD HAT and SAFETY BOOTS SITES and as such an adequate supply of Safety Helmets and Safety Boots shall be kept available for use by all Staffs, Workers and Authorised Visitors to the Sites.

The Contractor shall remove from the Site any worker who consistently refuses to wear the appropriate Personal Protective Equipment.

All Workmen at Site shall be provided with Safety Helmets and Yellow / Orange Jackets. Workmen required on Site during night hours shall be provided with Fluorescent Yellow Jackets with Reflective Lopes. Workers employed on mixing Asphaltic Materials, Cement, Lime Mortars, Concrete, etc. shall be provided with Protective Footwear, Protective Goggles. Those engaged in handling any Material, which is injurious to the eyes, shall be provided with Protective Goggles. Those engaged in Welding Works shall be provided with Welder's Protective Eye Shield. Stone Breakers shall be provided with Protective Goggles and Protective Clothing and seated at sufficiently safe intervals.

40. **First Aid**

The Contractor shall maintain, at every Work Place, in a readily accessible place First Aid Appliances including an adequate supply of Sterilised Dressings, Bandages, Sterilised Cotton Wool, Eye Irritation Sterile Solution, Disposable Gloves, Ointments for Burns / Cuts, Pressure Dressings, Paper Towels, General Purpose Medicines, etc. as prescribed in the Factory Rules of the State in which the Work is being carried out. The Appliances shall be kept in good order and in large work places. They shall be placed under the charge of the Safety Officer deputed by the Contractor for this Work and the Safety Officer shall be readily available during Working Hours. In each Site Office and Location one Person, suitably trained in First Aid, shall be available at all Working Hours for the purpose of attending to emergencies.

41. **Fire Precautions**

The Contractor shall be responsible for supplying and maintaining adequate Fire Precaution Facilities on all the Work Sites. The following minimum Standards shall be adhered to.

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- The Contractor shall ensure that specially trained personnel are available to deal with fires due to Electrical Causes, Gas Explosions, etc.
- A Good Standard of Housekeeping shall be maintained at all times on the Sites.
- No Accumulations of Rubbish shall be allowed to gather.
- Combustible Scrap and other Construction Debris shall be disposed off site on day – to – day basis. If Scrap is to be burnt on site, the burning site shall be specified and located at a distance no less than 50m from any Construction Work or any other Combustible Materials.
- Signage shall be erected at prominent positions showing the correct use of Portable First Aid Fire Extinguishers.
- Emergency Plans and Fire Evacuation Plans shall be prepared and issued. Mock Drills shall be held on a regular basis to ensure the Effectiveness of the Arrangements.

42. **Fire Fighting Equipment**

At various locations around the Site, clearly visible Fire Points shall be established for use in an Emergency and each Fire Point should have available as a minimum the following type of Equipment.

- Dry Powder Extinguisher.
- Water Type Extinguisher.
- Bucket of Sand.

Recharging of Fire Extinguishers and their Proper Maintenance should be ensured and as a minimum should meet Indian National Standards.

The Telephone Number of the Local Fire Brigade along with other Emergency Numbers (Hospital, Police Stations, Ambulance, etc.) shall be displayed near each telephone on Site. Supervisors and Workmen at the Site should be trained in the Use of Fire Fighting Equipment provided at the Site.

43. **Storage of Flammable Liquid**

All Flammable Liquids shall be kept in a Secure Fire Resistant Store protected from Electrical Sparks, Welding Sparks, Open Flames and Smoking. Only such amounts of Flammable Liquids shall be issued as are required for immediate use.

Cans for carrying Flammable Liquids shall be leak proof and properly stoppered and clearly marked "Flammable Liquid".

Rags soaked in Paints, Kerosene and other Flammable Liquids shall be disposed of daily under supervision. Large quantities of such rags shall not be allowed to accumulate.

All Diesel Fuel Storage Tanks shall be bunded around in order to control any Spillage or Leakage that may occur.

"No Smoking" Signs shall be prominently displayed at all areas where Flammable Materials are stored.

44. **Defect Liability Period**

The Defect Liability Period for which the Various Items of Works executed to be maintained shall be as follows.

a. If the Asphalted layer is less than or equal to 40 mm thick, the Defect Liability Period is for 1 year and maintenance period is for 2 years
b. If the Asphalted layer is more than 40 mm thick, then the Defect Liability Period is for 3 year and Nil maintenance period.
c. All the Civil Works executed other than the Asphalted Surface shall be maintained for a Defect Liability Period of 12 months.

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Further, the Defect Liability Period will run concurrently from the Date of the Physical ... of the Project and on issuance of Completion Certificate by the Competent Authority.

45. **Release of Performance Security**
50% of Performance Security shall be released only after satisfactory completion of Defect... Period and the balance 50% shall be released only after satisfactory completion of ... period .

46. **Site Office**
The Contractor shall provide and maintain Furnished Site Office at the Project Location ... Supervisory Staff of the Employer and his approved Representative.

It shall have minimum 40 Sqm of Floor Area and shall include all Items like Electric Supply ... Electrical Items, Telephones, Lights, Fans and Complete Wiring, Drinking Water Supply ... Hygienic Toilet Facilities completed along with Furniture as per the Specification given in Section **100 of MoRT&H, Specifications for Road and Bridge Works (Fourth Revision).**

47. **Field Laboratory**
The Contractor shall provide and maintain adequately equipped Field Laboratory as required for Site Control on the Quality of Material and the Works. It shall have a minimum of 40 Sqm Area. The Field Laboratory shall be located as directed by the Employer or his approved Representative. It shall be provided with Amenities like Water Supply, Electric Supply, etc. The Laboratory will have all Services, Furniture, Equipments, etc. as per the Specification given in **Section 100 of MoRT&H, Specifications for Road and Bridge Works (Fourth Revision).**

48. The Right to carry out the Work either in Conformity with or in a Manner entirely different from the Terms of this Tender Document that may be considered most suitable before or subsequent to the Receipt of Tenders due to Exigencies of Work is reserved with the Employer.

49. **Progress of Work**
The Contractor shall give the Employer on the 4th Day of each Month a Progress Report of the Work done during the Previous Month.

The Progress of Work will be reviewed periodically by the Employer with the Contractor and Shortfalls, if any sorted out, the Contractor shall thereupon take such Action that may be necessary to bring back his Work to Schedule without any Additional Cost to the Employer by employing Overtime Operations, increasing the Number of Shifts, Capacity of the Equipment or otherwise as directed by the Employer and nothing shall be paid extra.

50. In the case of the death of a Contractor after executing the Agreement / Commencement of the Work, his Legal Heir, if an Eligible Registered Contractor and willing, can execute and complete the work at the accepted Tender Rates irrespective of the Cost of the Work.

The Employer shall have the right to verify all the Men and Machinery Details / Documents submitted by the Tenderer at any point of time during Technical Evaluation of the Tender Document.

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131

Annexure:A

LIST OF ORGANIZATIONS WHO ARE CONSIDERED AS APPOINTING AUTHORITY FOR APPOINTMENT OF ARBITRATORS[6]

1. Indian Council of Arbitration, New Delhi;
2. International Centre for Alternative Disputes Resolution (India);
3. Indian Roads Congress;
4. Indian Building Congress;
5. Indian Institute of Bridge Engineers;
6. Indian Institute of Public Health Engineers;
7. Institute of Water Works

[6] Add any other Organization considered suitable.

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SECTION 6: CONTRACT DATA

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract:	Clause Reference
• The Schedule of Operating and Maintenance Manuals	[48]
• The Methodology and Program of Construction	[25]
• Site Investigation Reports	[14]
• The Schedule of Key and Critical Equipment to be deployed on the work as per agreed program of construction.	[25]

The Employer is :

Name: The commissioner
BBMP ,NR Square Bangaluru [1.1]

Name of authorized Representative: Office of the Executive Engineer
R.R.Nagara Division,
Mattikere near Chowdeshwari Bus stand
Bruhat Bangaluru Mahanagara Palike
Bangaluru. 560054

The name and identification number of the Contract is

Comprehensive development of roads, drains and footpath in HMT Layout, SBM Colony and Surrounding areas in Ward No.17 under PACKAGE- 2019-20 RRN-DIV-(10).

The Works consist of **Comprehensive development of roads, drains and footpath in HMT Layout, SBM Colony and Surrounding areas in Ward No.17 under PACKAGE- 2019-20 RRN-DIV-(10).**

1.1 The Start Date shall be the **Date of Issue of Notice to Proceed with the Work.**

1.1 The Project Site Location is given in Topographical Map.

The intended completion date for the whole of the works is 06 months with the following milestone

Mile stone Dates:
Physical works to be completed: period from the date of issue of Notice to proceed with the work

Milestone 1 i.e 30% of Physical progress and Rs: 286.00 Lakhs Financial progress within 04 months from the date of work order

Milestone 2 i.e. 60% of Physical progress and Rs 572.00 Lakhs Financial progress within 08 months from the date of work order.

Milestone 3 i.e 100% of Physical progress and Rs . 953.00 Lakhs financial progress within 12 months from the date of work order.

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13.Insurance Requirements are as under.

Sl No	Type of Cover	Minimum cover for Insurance for 12 months
(i)	Works and of Plant and Materials	The Sum stated in the Agreement plus 20%
(ii)	Loss or damage to equipment	Full Replacement Cost
(iii)	Loss or damage to property of Third Party	Full Replacement Cost
(iv)	Personal Injury or Death Insurance (a) for Third Party	Rs. 20.00 Lakh to cover 4 Persons @ Rs. 5.00 Lakh each.
	(b) for Contractor's Employees or Labour	In accordance with the Statutory Requirements Applicable to Karnataka.

25. The Methodology and Program of Construction: within **10 Days from the Date of Entering into Agreement.**

25. The Schedule of Key and Critical Equipment to be deployed on the Work as per Agreed Program of Construction: **10 Days from the Date of Entering into Agreement.**

17, 26 The Liquidated Damages for the works (including monsoon) is as follows:

Milestone 1 i.e Rs.700/- per day
Milestone 2 i.e. Rs.700 /- per day
Milestone 3 i.e Rs. 800/- per day

41. The Liquidated Damages for the whole of the Works is Rupees 700 per day.

41.The Maximum amount of Liquidated Damages for the whole of the Works: **10% of Final Contract Price.**

49.2 The following Events shall also be fundamental breach of the contract:
1. The Contractor has contravened Clause 9 of CC.

50.1 The Percentage to apply to the Value of the Work not completed representing the Employer's Additional Cost for completing the Works shall be **30%.**

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SECTION 7: SPECIFICATIONS

For Specifications, all the Relevant Sections of MoRT&H [Specifications for Road and Bridge Works (Latest Editions)], all the Relevant IRCs and Special Publications (Latest Editions) shall be referred.

SECTION 8: DRAWINGS

Drawings are attached.

SECTION 9: BILL OF QUANTITIES

Bill of Quantities is given in Volume II.

Note:

1. Item for which no Rate or Price has been entered in will not be paid for by the Employer when executed and shall be deemed Covered by the other Rates and Prices in the Financial Bid (Refer ITT Clause 11.2 and CC Clause 37.2).

2. Unit Rates and Prices shall be quoted by the Tenderer in Indian Rupees.

3. Where there is a Discrepancy between the Rate in Figures and Words, the lower of the two will govern [Refer ITT Clause 24.1(a)].

4. Where there is a Discrepancy between the Unit Rate and the Line Item Total resulting from multiplying the Unit Rate by Quantity, the Unit Rate quoted shall govern [Refer ITT Clause 24.1 (b)].

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SECTION 10: FORMAT OF BANK GUARANTEE FOR PERFORMANCE SECURITY

To:

The Executive Engineer
Rajarajeshwarinagara Division
Bruhat Bangalore Mahanagara Palike
Bangalore 560054

WHEREAS _____ [Name and Address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. ____ dated _____ to execute _____ [name of Contract and Brief Description of Works] (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized Bank for the sum specified therein as Security for compliance with his Obligations in Accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee.

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, upto a total of Rs._____ [Amount of Guarantee][5] Rupees_____ [in words] and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [Amount of Guarantee][6] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the Terms of the Contract or of the Works to be performed there under or of any of the Contract Documents which may be made between you and the Contractor shall in any way release us from any Liability under this Guarantee, and we hereby waive Notice of any such Change, Addition or Modification.

This Guarantee shall be valid until 30 days from the Date of Expiry of the Defect Liability Period of 36 months plus Claim Period of 6 months.

Signature and Seal of the Guarantor:
Name of Bank:
Address:
Date:

[5] An Amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract.

[6] An Amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract.

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BRUHAT BANGALORE MAHANAGARA PALIKE

Name of the work:- Comprehensive development of roads, drains and footpath ... Layout, SBM Colony and Surrounding areas in Ward No.17 under PACKAGE- 201... DIV-(10).

"DRAFT TENDER SCHEDULE"

Sl No	Description of Items	Unit	Sanction		Quoted Rate	
			Quantity	Rate	Figures	
1.	Removing and Refixing stone slabs of drains and pointing in CM(1:3)Complete as per the direction of Engineer in charge with all lead and lift	Sqm	16567.88			
2.	Earthwork excavation by manual means in ordinary soil invoiving in average horizontal throw up to 2m & an average lift upto 1.5m , excavated surface leveled & sides neatly dressed , the disposed earth to be levelled neatly after breaking of clods complete as per specification Complete as per the direction of Engineer in charge with all lead and lift	Cum	9194.29			
3.	Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 m nominal size mechanically mixed, placed in foundation and compacted by vibration including curing complete as per specifications Complete as per the direction of Engineer in charge with all lead and lift	Cum	21.73			
4.	Providing and laying plain/reinforced cement concrete for side drains using M20 nominal mix concrete with OPC at 300 kgs. with 20mm and down size granite metal coarse aggregates at 0.69 cum and fine aggregates at 0.43 cum machine mixed, well compacted for walls and bottom including centering, shuttering, cost of materials, HOM of machinery, curing etc., complete excluding cost of steel as per MORTH specification No. 1500, 1700, 2200. including cost of materials, labour, HOM complete as per specifications.-do- wall and bottom thickness 15cm Complete as per the direction of Engineer in charge with all lead and lift	Cum	61.56			

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5.	Providing T.M.T. steel reinforcement for R.C.C. work including straightening, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per disign (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM complete as per specification. Complete as per the direction of Engineer in charge with all lead and lift	Tn	4.92			128
6.	Providing and constructing precast concrete solid blocks with compressive strength not less than 3.5 Newton per sqm with cement mortar 1:4 masonry (quoin, Jamb, closer blocks) with solid concrete blocks of size 40x15x20cms conforming to I.S: 2185/1965 in superstructure including cost of materials, labour charges, scaffolding, curing complete as per specifications.-do with solid concrete blocks of size 400*200*200 mm Complete as per the direction of Engineer in charge with all lead and lift	Sqm	4879.20			
7.	Providing ruled pointing to coursed stone masonry with cement mortar, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, HOM curing complete as per specifications.– do – cement mortar 1:3Complete as per the direction of Engineer in charge with all lead and lift	Sqm	19289.40			
8.	Providing and laying in position plain cement concrete of Mix 1:2:4 with OPC @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.69 cum and fine aggregtes @ 0.459cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, for coping including cost of all materials, labour, HOM curing Complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Cum	964.47			
9.	Providing granite slabs of selected quality roughly dressed havinf a size of 10 cms thick and fixed in cement mortar (1:6) including fixing curing ete., complete.Complete as per the direction of Engineer in charge with	Sqm	5522.63			

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	all lead and lift					
10.	Providing one line dressing to granite stone slab / granite stone masonry as per specifications .Complete as per the direction of Engineer in charge with all lead and lift	Sqm	5522.63			
11.	Providing chamfering edges to stone slab 2.5 cms. wide as per specifications. (only chamfered length shall be recorded) Complete as per the direction of Engineer in charge with all lead and lift	Sqm	25771.20			
12.	Providing & laying precast drain cover slab of 250 mm thickness in CM 1:3 including cost of all materials, labour, curing, transportation, loading, unloading etc, complete as per the directions of the Engineer In Charge.(1.2 x 0.60 x 0.25)Data rate	Sqm	120.70			
13.	Removing and resetting of Kerb stones Complete as per the direction of Engineer in charge with all lead and lift	M	13965.70			
14.	Providing and fixing pre cast solid concrete kerb stones of size 450x150x500 mm made out of CC 1:2:4 and finished with CM 1:3 plastering and finishing cutting ete., complete. Complete as per the direction of Engineer in charge with all lead and lift	No's	13301.00			
15.	Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Sqm	7980.40			
16.	Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials stacking serviceable and unserviceable materials seperately complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Cum	350.76			
17.	Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment	Cum	3734.28			

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	location to a lead of 1.00 km and complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift					127
18.	Construction of granular sub-base Grading-V as Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98 % proctor density, complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Cum	1691.76			
19.	Providing, laying, spreading and compacting crushed stone aggregates of granite / trap / basalt to wet mix macadam specifications including pre mixing the material with water at OMC in mechanical mix plant carriage of mixed method of tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Cum	2056.20			
20.	Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM ,including clearing of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per Specifications. Complete as per the direction of Engineer in charge with all lead and lift	Sqm	8940.00			
21.	Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatment including cost of all materials, labour, HOM of machineries complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Sqm	49378.90			
22.	Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with	Sqm	107697.80			

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	spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.Complete as per the direction of Engineer in charge with all lead and lift					
23.	Providing and laying dense graded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH table 500-10 complete in all respects complete as per specifications.. MORTH Specification No. 507 - using 40/60 TPH capacity H.M.P. with Mechanical paver Gr-II (50 mm to 75mm) with 4.5 % VG-30 Bitumen Complete as per the direction of Engineer in charge with all lead and lift	Cum	2915.95			
24.	Providing and laying bituminous concrete using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laying with a paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects complete as per specifications. Clause 507 of MORTH V revision. -using40/60 TPH capacity H.M.P. with Mechanical Paver Gr-II (30 mm to 40 mm) with 5.4% VG-30 Bitumen Complete as per the direction of Engineer in charge with all lead and lift.	Cum	2332.76			
25.	Road Marking with Hot Applied Thermoplastic Compound with Reflectrising Glass Beads on Bituminous Surface:- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. Complete as per the direction of Engineer in charge with all lead and lift	Sqm	3897.75			

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26.	Road markers / Road stud Providing and fixing of road stud 100x 100 mm, diecast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS: 873 part 4:1973 complete as per specifications Complete as per the direction of Engineer in charge with all lead and lift	No's	6929.00			126
27.	Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016,aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1,optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601of MORTH V Revision and IS 456 Table-5 do-with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with fixed form paver. Complete as per the direction of Engineer in charge with all lead and lift	Cum	350.76			
28.	Constructing un-reinforced, plain cement concrete for pavements using Grade concrete M30 over a prepared base with OPC coarse aggregate at 0.69 cum, fine aggregates at 0.46 cum,Coarse and fine aggregate conforming to IS:383-2016, with Superplastizer at 3 lts conforming to IS 9103-2008. mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel,laying and fixing of 125 micron thick polythene film, wedges, steelplates including levelling the form work as per drawing). & Spreading the concrete	Cum	400.00			

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	with shovels, rackers compacted using needle, screed and plate vibrator and finished with floaters in a continuous operation including provision of contraction, expansion, construction and longitudinal joints,including groove cutting charges, joint filler, separation membrane of impermiable plastic sheet of 125 micron, sealant primer, joint sealant, admixtures as approved, curing compound, finishing to -do- with OPC at 360 kg/cum and coarse aggregate 0.69cum, fine aggregate 0.46cum. Complete as per the direction of Engineer in charge with all lead and lift					
29.	Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift. Complete as per the direction of Engineer in charge with all lead and lift	Sqm	2000.00			

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